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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/720,218	11/25/2003	Scott Darling	01762.010000.	4963
5514	7590	05/17/2006	EXAMINER	
FITZPATRICK CELLA HARPER & SCINTO 30 ROCKEFELLER PLAZA NEW YORK, NY 10112			LEUNG, JENNIFER A	
			ART UNIT	PAPER NUMBER

1764

DATE MAILED: 05/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/720,218

Applicant(s)

DARLING, SCOTT

Examiner

Jennifer A. Leung

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 6-6-05; 4-20-04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1, 5-7 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Zubrod (US 4,665,865).

Regarding claim 1, Zubrod (FIGs. 1-10) discloses an apparatus comprising:
a reaction chamber (i.e., combustion chamber or firebox **2**, with first gas flue **3**; FIGs. 1, 2)
having a fluidized bed of solid particulates therein (e.g., fluidized coal granules; column **3**, lines 43-47), and being defined by a ceiling (i.e., intermediate ceiling **4**), a bottom (i.e., combustion chamber floor **21**) and walls (i.e., front wall **12**, rear wall **7** and sidewalls **34**),
at least partially formed by water tube panels (i.e., tube walls provided with gas-tight and vertical tubes; see FIGs.);
means for introducing fluidizing gas (i.e., nozzles **22** communicating with air inlet line **23**);
at least one discharge opening (i.e., outlet opening **25**; FIG. 2) for removing a particle suspension
of exhaust gases and solid particles from the reaction chamber **2/3**;
at least one particle separator (i.e., cyclone **5**; FIG. 1) connected to the discharge opening **25**, the
separator **5** having a gas discharge opening in an upper part thereof connected to a
discharge duct (not labeled, see FIG. 1 and 2);
a heat recovery section (e.g., reheat surfaces **8, 9**; feed water preheater **10**; FIG. 1); and

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a gas plenum (i.e., cross flue 11) defined by an enclosure comprising a ceiling (i.e., wall 24), a bottom (i.e., intermediate ceiling 4) and walls (i.e., sidewalls 34, front wall 12) positioned above and integrated with the reaction chamber 2/3, for directing cleaned exhaust from the separator 5 to the heat recovery section 8/9/10, said plenum 11 having at least one exhaust gas inlet opening (i.e., inlet opening 40) arranged in the wall (i.e., in front wall 12) for receiving cleaned exhaust gases from the discharge duct of the separator 5 and directing the cleaned exhaust gases to the plenum 11, said plenum 11 being connected to a connecting channel (i.e., second gas flue 6) downstream of the plenum 11 for leading cleaned exhaust from the plenum 11 to the heat recovery section 8/9/10;

wherein the enclosure of the gas plenum 11 is formed by water tube panels as extensions of the water tube panels of the reaction chamber 2/3 (see FIG. 2).

Regarding claim 5, the water tube panel that forms a first one of the walls (e.g., front wall 12) of the reaction chamber 2/3 comprises first and second water tubes 14 and 13, respectively; at least a portion of the water tube panel that forms the bottom 4 of the enclosure of the gas plenum 11 is formed as an extension of the first water tubes 14 of the water tube panel that forms the first wall 12 of the reaction chamber 2/3; and

at least a portion of the water tube panel that forms one of the walls of the enclosure (i.e., the wall containing opening 40) of the gas plenum 11 is formed as an extension of the second water tubes 13 of the water tube panel that forms the first wall 12 of the reaction chamber 2/3. (see FIG. 2; column 4, line 38 to column 5, line 29).

Regarding claim 6, the gas plenum 11 is divided into at least two separate chambers by at least one partition formed by at least one water tube panel as an extension of at least one of the

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water tube panels of the reaction chamber 2/3 (e.g., as divided by tubes 35, 36; FIG. 2).

Regarding claim 7, the water tube panel that forms a first one of the walls 12 of the reaction chamber 2/3 comprises first and second water tubes 14 and 13, respectively;

at least a portion of the water tube panel that forms the bottom 4 of the enclosure of the gas plenum 11 is formed as an extension of the first water tubes 14 of the water tube panel that forms the first wall 12 of the reaction chamber 2/3;

at least a portion of the water tube panel that forms one of the walls of the enclosure of the gas plenum is formed as an extension of the second water tubes 13 of the water tube panel that forms the first wall 12 of the reaction chamber 2/3; and

at least a portion of the water tube panel that forms the partition 35/36 of the gas plenum 11 is formed as an extension of the first water tubes 14 of the water tube panel that forms the first wall 12 of the reaction chamber 2/3. (see FIG. 2; column 4, line 38 to column 5, line 29).

Regarding claim 9, Zubrod discloses that the water tube panels that form the enclosure of the gas plenum 11 comprise water tubes (e.g., water tubes 13, 14, 16, 17, 18), and the enclosure of the gas plenum 11 is at least partially formed as an extension of the water tube panel that forms one of the walls (e.g., walls 12, 7) of the reaction chamber 2/3 (see FIG. 2). Zubrod discloses the extension being formed in such a way that a portion of the water tubes (e.g., tubes 18) of the water tube panel that forms the wall of the reaction chamber 2/3 is connected at the upper edge of the wall of the reaction chamber to a header (i.e., intermediate ceiling header 20), from which header the water tubes 18 are extended to form a portion of the enclosure (i.e., the wall portion 4) of the gas plenum 11.

Instant claims 1, 5-7 and 9 structurally read on the apparatus of Zubrod.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zubrod (US 4,665,865) in view of Cooke (US 4,355,602).

Although Zubrod is silent as to the walls of the enclosure of the gas plenum 11 and reaction chamber 2/3 being formed by water tubes according to the instantly claimed configurations, it would have been obvious for one of ordinary skill in the art at the time the invention was made to select one of the claimed configuration of the water tubes for the enclosures in the apparatus of Zubrod, on the basis of suitability for the intended use thereof, because the claimed tubing configurations are conventional in the art, as evidenced by Cooke.

Regarding claim 2, Cooke '602 (FIG. 1, 2) teaches an arrangement wherein at least a portion of a bottom and of the walls of an enclosure (i.e., a chamber 40c) is formed in such a way that an extension of the water tube panel that forms a first one of the walls of another enclosure (i.e., a chamber 40a) is (i) bent at the upper edge of a first wall and extended toward an opposite second wall; (ii) bent 180 degrees and extend to the lower edge of on of the walls of the enclosure 40c, directly above the first wall of the another enclosure 40a; and (iii) bent upward and extended to the upper edge of the wall of the enclosure 40c, directly above the first wall of the another enclosure 40a (i.e., see the bending of tubes 38b, best seen in FIG. 2).

Regarding claim 4, Cooke '602 (FIG. 1, 2) teaches an arrangement wherein at least a

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portion of the bottom and walls of an enclosure (i.e., of a chamber **40b**) is formed in such a way that an extension of the water tube panel that forms a first one of the walls of another enclosure (i.e., of a chamber **40a**) is (i) bent at the upper edge of the first wall of the another enclosure **40a** and extended toward an opposite second one of the walls of the another enclosure **40a**; and (ii) bent upward and extended to the upper edge of one of the walls of the enclosure **40b** that is directly above the second wall of the another enclosure **40a** (i.e., see the bending of tubing **36a**, best seen in FIG. 1).

3. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zubrod (US 4,665,865) in view of Cooke (US 5,050,542).

Although Zubrod is silent as to the walls of the enclosure of the gas plenum **11** and reaction chamber **2/3** being formed by water tubes according to the instantly claimed configurations, it would have been obvious for one of ordinary skill in the art at the time the invention was made to select one of the claimed configuration of the water tubes for the enclosures in the apparatus of Zubrod, on the basis of suitability for the intended use thereof, because the claimed tubing configurations are conventional in the art, as evidenced by Cooke '542. In particular, Cooke '542 (FIG. 1, 4) teaches an arrangement wherein at least a portion of the bottom and the walls of an enclosure (e.g., defining the upper most chamber) are formed in such a way that extensions of the water tube panels that form two opposite walls of another enclosure (e.g., defining the bottom most chamber) are (i) bent toward each other at the respective upper edges of the two walls and extended in such a way that the extensions meet; (ii) bent 180 degrees and extended to the lower edges of the respective opposite walls of the enclosure that are directly above the two opposite walls of the another enclosure; and (iii) bent

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upward and extended to the upper edges of the respective opposite walls of the enclosure (see bending of serpentine tubes **33,34** shaded in FIG. 4).

4. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zubrod (US 4,665,865) in view of Cooke (US 5,870,976).

Although Zubrod is silent as to the walls of the enclosure of the gas plenum **11** and reaction chamber **2/3** being formed by water tubes according to the instantly claimed configurations, it would have been obvious for one of ordinary skill in the art at the time the invention was made to select one of the claimed configuration of the water tubes for the enclosures in the apparatus of Zubrod, on the basis of suitability for the intended use thereof, because the claimed tubing configurations are conventional in the art, as evidenced by Cooke '976. In particular, Cooke '976 (FIG. 4, 5) teaches an arrangement wherein the water tube panel that forms a first one of the walls of an enclosure (i.e., defining the bottom most chamber) comprises first and second water tubes (i.e., tubes **33** and **31**, respectively); at least a portion of the water tube panel that forms the bottom of another enclosure (i.e., the chamber located immediately above the bottom most chamber) is formed as an extension of the first water tubes **33** of the water tube panel that forms the first wall of the enclosure (i.e., the right wall of the bottom chamber); at least a portion of the water tube panel that forms one of the walls of the another enclosure (i.e., the left wall of the chamber immediately above the bottom most chamber; FIG. 5) is formed as an extension of the first water tubes **33** of the water tube panel that forms the first wall of the enclosure; and at least a portion of the water tube panel that forms a partition of the another enclosure is formed as an extension of the second water tubes **31** of the water tube panel that forms the first wall of the enclosure (i.e., tubes **31** also form a portion of the

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right wall of the bottom chamber; see FIG. 4).

5. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zubrod (US 4,665,865) in view of Hyppanen et al. (US 5,281,398).

Regarding claim 10, Zubrod is silent as to the provision of at least three particle separators 5, wherein the discharge duct of at least one of the particle separators is connected directly to the connecting channel 6, downstream of the gas plenum 11. In any event, it would have been obvious for one of ordinary skill in the art at the time the invention was made to provide at least three particle separators in the apparatus of Zubrod, on the basis of suitability for the intended use, because the duplication of part was held to have been obvious. *St. Regis Paper Co. v. Beemis Co. Inc.* 193 USPQ 8, 11 (1977); *In re Harza* 124 USPQ 378 (CCPA 1960). Furthermore, the configuration of at least three particle separators is conventional, as evidenced by Hyppanen et al. In particular, Hyppanen et al. teaches an apparatus comprising at least three particle separators 112a, 112b, 112c, etc. (see FIG. 9; column 11, lines 54-60), which is desirable when the amount of particles to be separated is great (see column 6, lines 33-40).

Regarding claim 11, as can be seen in FIG. 2, the connecting channel 6 widens in the flow direction of the cleaned exhaust gases (i.e., the cross-sectional area of channel 6 is greater than the cross-sectional area of cross flue 11).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A. Leung whose telephone number is (571) 272-1449. The examiner can normally be reached on 9:30 am - 5:30 pm Monday through Friday.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's

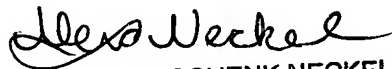
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supervisor, Glenn A. Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jennifer A. Leung

May 12, 2006 


ALEXA DOROSHENK NECKEL
PRIMARY EXAMINER